
REMARKS*Rejection under 35 U.S.C. § 112, 2d ¶*

Claims 1-18 are rejected under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

The parentheses are removed from claim 1, replaced by commas.

The Examiner states that "rapid" is a relative term. Claim 1 still retains "rapid," but later quantifies it by requiring the pH of the solution to, upon mixing, drop to between 7 and 8 in one hour. Therefore, "rapid" refers to a length of time under 1 hour. Support for the amendment to claim 1, "within an hour," is found in the specification on p. 6 at line 23-25 ("15 to 30 minutes to stabilize") and p. 9 at lines 30-33.

The Examiner states that "facilitates" is relative and it is unclear to what extent kill is provided or how. The Examiner is respectfully reminded that there is no requirement that the inventor know how or why the invention works. "[I]t is axiomatic that an inventor need not comprehend the scientific principles on which the practical effectiveness of his invention rests." Fromson v. Advance Offset Plate, Inc., 720 F.2d 1565, 1570, 219 U.S.P.Q. 1137, 1140 (Fed. Cir. 1983). Making the rejections moot, "which facilitates microbial kill." is removed from the end of claim 10.

The amended claim 1 uses "or" terminology. Alternative expressions using "or" are acceptable, such as "wherein R is A, B, C or D. MPEP § 2173.05(h)

Now that independent claim 1 is allowable, so are dependent claims 2-15. Claim 16 is rejected as being "ambiguous" with unclear metes and bounds. The Applicant respectfully traverses this rejection. Claim 16 is clearly a composition claim and lists a possible composition.

The preamble uses functional language. There is no rule against the use of functional language in a preamble. Now that independent claim 16 is allowable, so are dependent claims 17 and 18.

Rejection under 35 U.S.C. § 112, 1st ¶

Claims 1-15 are rejected under 35 U.S.C. § 112, first paragraph for failing to comply with the enablement requirement. Claim 1 requires the absence of peracetic acid while the specification (p. 3, lines 31-32) requires the absence of acetyl donors. The Examiner states that this situation results in claimed subject matter that is not described in specification in such a way to as to enable one skilled in the art to make and/or use the invention. In fact, claim 1 and the specification describe the same thing in different ways. Acetyl donors form peracetic acid if reacted with a hydroperoxide group.

Peracetic acid is CH_3COOOH . Acetyl is a functional group, $[\text{CH}_3\text{CO}^+]$, that makes up part of peracetic acid. In the invention, at alkaline pH, the peroxoborate species has the ability to donate a peroxy group as a nucleophile to the carbonyl carbon of an acyl donor group. An acyl group is an organic acid group in which the OH of the carboxyl group is replaced by some other substituent. An example of an acyl donor is given in the specification at p. 6, line 4. An example of an acyl group is acetyl, $[\text{CH}_3\text{CO}^+]$. If the hydroperoxide group is added to the acetyl group, peracetic acid is formed. See page 5, lines 25-28.

This chemistry is explained beginning on line 8 of page 5 of the specification.

Rejection under 35 U.S.C. § 102

Claims 1-6, 10-15, 19 and 20 are rejected under 35 U.S.C. § 102(b) as anticipated by, or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Yamaguchi et al., JP 10110194 ("Yamaguchi"). An anticipation rejection requires a showing that each element of the claim is

found in a single reference, practice or device." In re Donohue, 766 F.2d 531, 534, 226 U.S.P.Q. 619, 621 (Fed. Cir. 1985).

Yamaguchi does not disclose an element of the invention, specifically "a buffering system which upon mixing with water allows the pH to rise to about 9 for a rapid formation of one or more peroxycarboxylic acids and then drop to from about 7.0 to about 8.0 within an hour for sustained stability and microbial kill." Note that Yamaguchi discloses percarbonate and/or perborate salts which release H_2O_2 in water. This implies that the buffer solution, if any, is acidic. As detailed in the present application, "[w]hen added to water, perborate hydrolyses to form the peroxoborate complex ion, $(HO)_3BOOH^-$, and other borate species. At acidic pH, the peroxoborate anion further hydrolyses to form tetrahydroxy borate anions, $B(OH)_4^-$, and hydrogen peroxide, H_2O_2 . At alkaline pH, however, the peroxoborate species has the ability to donate a peroxo group as a nucleophile to the carbonyl carbon of an acyl/aroyl donor."

Specification, p. 5, starting at line 14.

In the present application, the pH is never acidic; it first rises approximately to 9 then drops to approximately 7.5. Due to the different pH used in Yamaguchi, different chemical species are present in solution in Yamaguchi compared to the present invention. Now that independent claim 1 is allowable, so are dependent claims 1-6 and 10-15.

Claim 19 is amended to restrict R from C_2 to C_4 . Yamaguchi only claims $R = C_5 - C_{18}$. Therefore, independent claim 19 is now allowable as is dependent claim 20.

Claims 1-6, 10-15, 19 and 20 are still rejected under 35 U.S.C. § 103(a) as obvious over Yamaguchi. It is impermissible within the framework of § 103 to pick and choose from any one reference only so much of it as will support a given position to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one skilled in the art.

Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve, 796 F.2d 443, 448 (Fed. Cir. 1986), cert. denied, 484 U.S. 823 (1987) (quoting In re Wesslau, 353 F.2d 238, 241 (C.C.P.A. 1965)).

Yamaguchi teaches perborate salts, like the present invention. However, in citing Yamaguchi, the Examiner is leaving out that Yamaguchi teaches an acidic pH range, not the slightly basic pH taught in the present invention. This difference in pH results in completely different borate species in solution. Yamaguchi teaches away from a slightly basic pH.

In addition, to establish a prima facie case of obviousness, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. M.P.E.P. § 706.02(j). There is no suggestion or motivation in Yamaguchi to modify the reference.

Even if there is some suggestion or motivation to make the above combination with a reasonable expectation of success, the combination or modification cannot render the claimed invention obvious if the combination or modification does not teach a claim limitation. All claim limitations are significant, and must be given weight and effect vis-à-vis the patentability of the claims. Application of Saether, 492 F.2d 849, 852 (C.C.P.A. 1974). If even a single claim limitation is not taught or suggested by the prior art, then that claim cannot be obvious over the prior art. Application of Glass, 472 F.2d 1388, 1392 (C.C.P.A. 1973). Yamaguchi does not teach the "buffering system" in claim 1 in the present invention which results in a slightly basic solution.

Now that independent claim 1 is allowable, so are dependent claims 1-6 and 10-15.

Claim 19 is amended to restrict R from C₂ to C₄. Yamaguchi only claims R = C₅ - C₁₈.

Therefore, independent claim 19 is now allowable as is dependent claim 20.

~~Claims 1-20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamaguchi~~
and Kralovic et al. (U.S. 5,350,563). Claim 1 is amended to specify that the peroxycarboxylic acids of the present invention are represented as RCOOOH , where $R = \text{C}_2 - \text{C}_4$ alkyl, straight chain, branched chain or cyclic. This amendment is supported in the specification on p. 6, lines 11-12. This amendment takes the present invention outside the scope of Kralovic ($R = \text{C}_1$) and Yamaguchi ($R = \text{C}_5$ to C_{18}). As stated above, if even a single claim limitation is not taught or suggested by the prior art, then the claim cannot be obvious over the prior art. Amended claim 1 is now allowable as are dependent claims 2-15.

Claim 16 is amended to specify that the peroxycarboxylic acids formed by the present composition are represented as RCOOOH , where $R = \text{C}_2 - \text{C}_4$ alkyl, straight chain, branched chain or cyclic. This amendment takes the invention outside the scope of Kralovic ($R = \text{C}_1$), and Yamaguchi ($R = \text{C}_5$ to C_{18}). As stated above, if even a single claim limitation is not taught or suggested by the prior art, then the claim cannot be obvious over the prior art. Amended claim 16 is now allowable as are dependent claims 17 and 18.

Claim 19 is amended to restrict R from C_2 to C_4 . Yamaguchi only claims $R = \text{C}_5 - \text{C}_{18}$. Kralovic only claims $R = \text{C}_1$. Therefore, independent claim 19 is allowable as is dependent claim 20.

No fees or extensions of time are believed to be due in connection with this amendment; however, consider this a request for any extension inadvertently omitted, and charge any additional fees to Deposit Account No. 26-0084.

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Reconsideration and allowance is respectfully requested.

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Respectfully submitted,

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EDMUND J. SEASE, Reg. No. 24,741
McKEE, VOORHEES & SEASE, P.L.C.
801 Grand Avenue, Suite 3200
Des Moines, Iowa 50309-2721
Phone No: (515) 288-3667
Fax No: (515) 288-1338
CUSTOMER NO: 22885

Attorneys of Record

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